FIG. 1

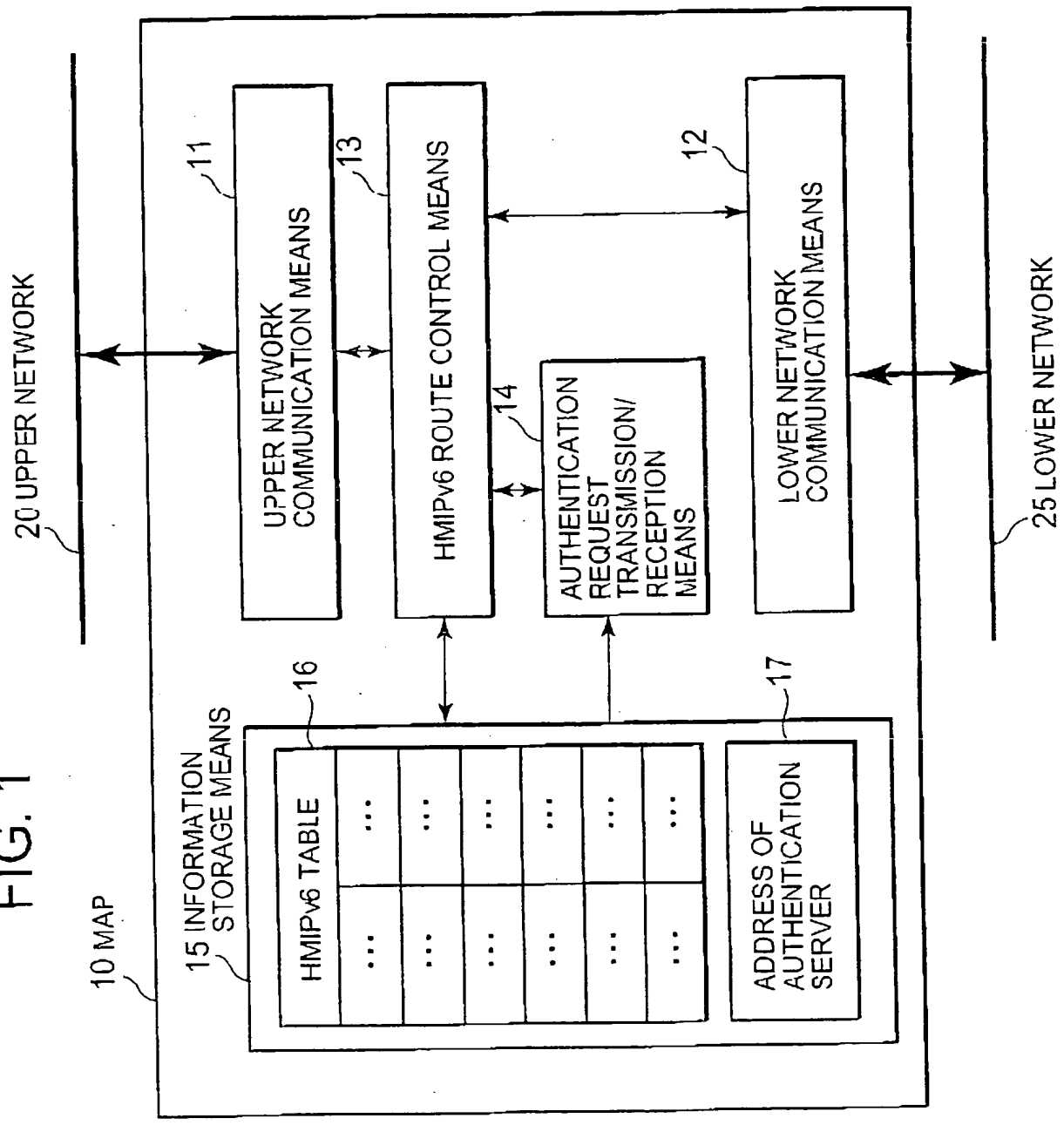

10 MAP
20 UPPER NETWORK
25 LOWER NETWORK
11
UPPER NETWORK COMMUNICATION MEANS
13
HMIPv6 ROUTE CONTROL MEANS
12
LOWER NETWORK COMMUNICATION MEANS
14
AUTHENTICATION REQUEST TRANSMISSION/ RECEPTION MEANS
15 INFORMATION STORAGE MEANS
16
HMIPv6 TABLE
17
ADDRESS OF AUTHENTICATION SERVER

FIG. 2

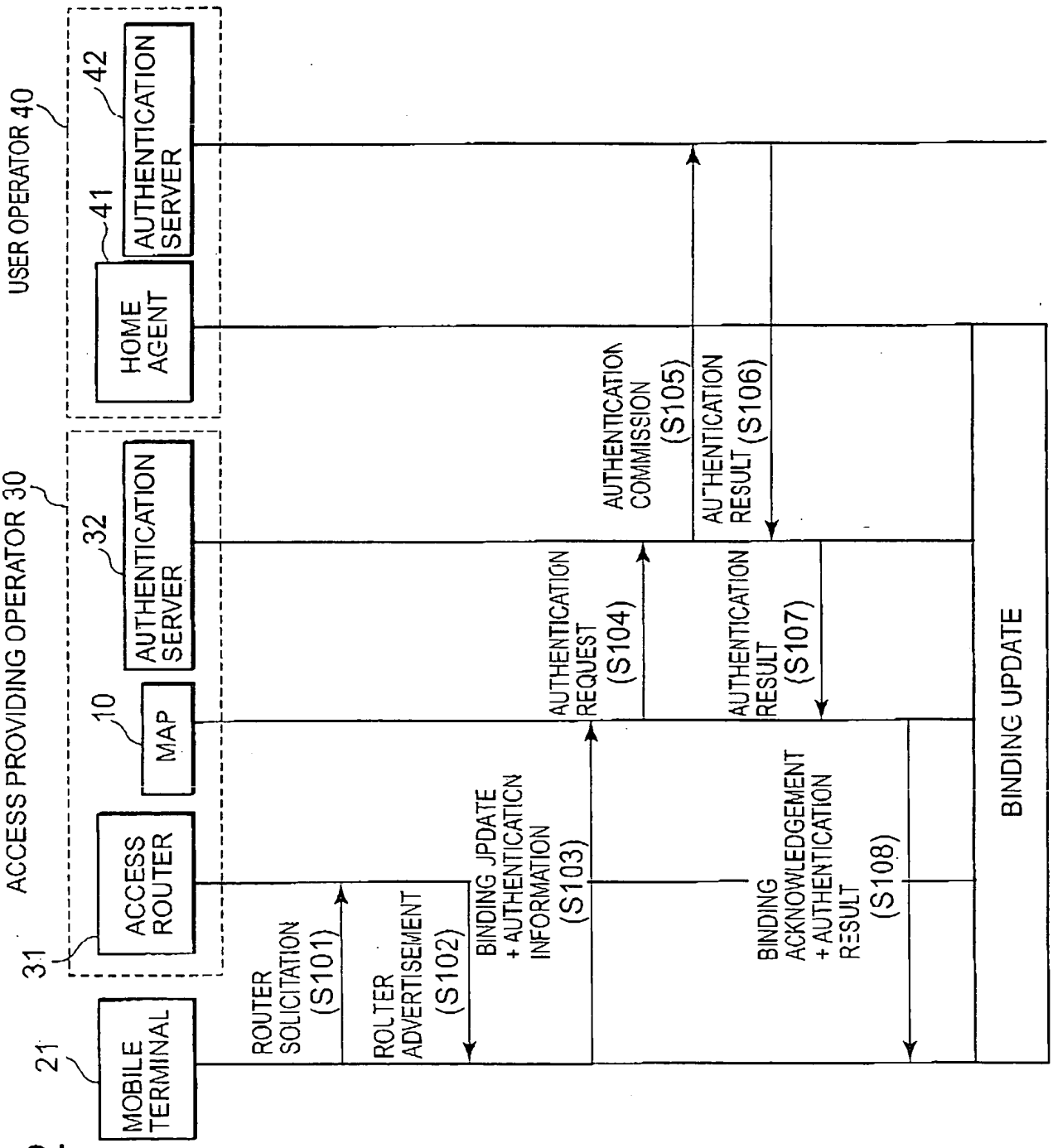

MOBILE TERMINAL
21
ACCESS PROVIDING OPERATOR 30
31
ACCESS ROUTER
10
MAP
32
AUTHENTICATION SERVER
USER OPERATOR 40
HOME AGENT
41
42
AUTHENTICATION SERVER
ROUTER SOLICITATION (S101)
ROUTER ADVERTISEMENT (S102)
BINDING JPDATE + AUTHENTICATION INFORMATION (S103)
AUTHENTICATION REQUEST (S104)
AUTHENTICATION COMMISSION (S105)
AUTHENTICATION RESULT (S106)
AUTHENTICATION RESULT (S107)
BINDING ACKNOWLEDGEMENT + AUTHENTICATION RESULT (S108)
BINDING UPDATE

FIG. 3

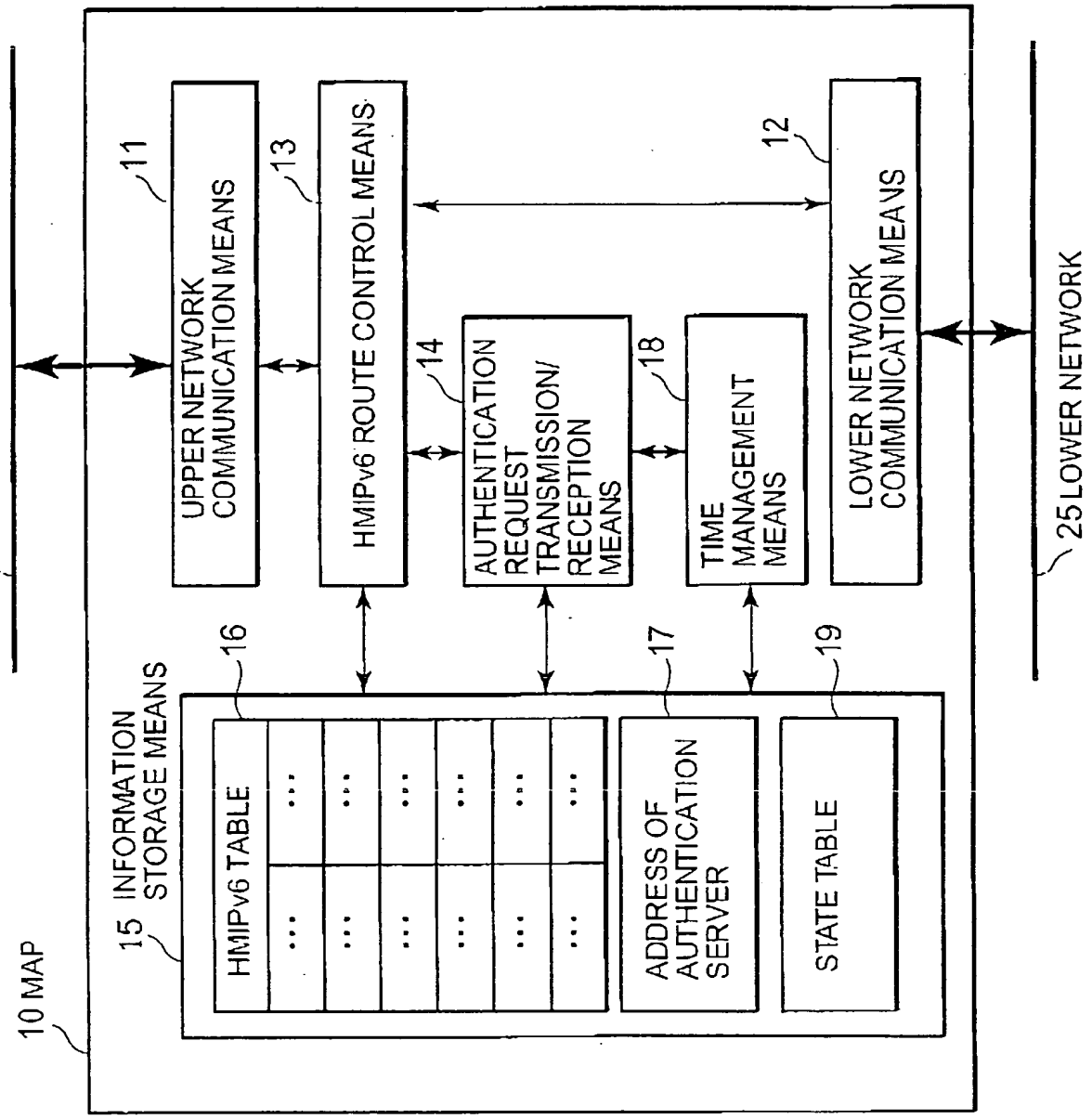

10 MAP
20 UPPER NETWORK
25 LOWER NETWORK
11
UPPER NETWORK COMMUNICATION MEANS
13
HMIPv6 ROUTE CONTROL MEANS
12
LOWER NETWORK COMMUNICATION MEANS
14
AUTHENTICATION REQUEST TRANSMISSION/ RECEPTION MEANS
18
TIME MANAGEMENT MEANS
15 INFORMATION STORAGE MEANS
16
HMIPv6 TABLE
17
ADDRESS OF AUTHENTICATION SERVER
19
STATE TABLE

FIG. 4

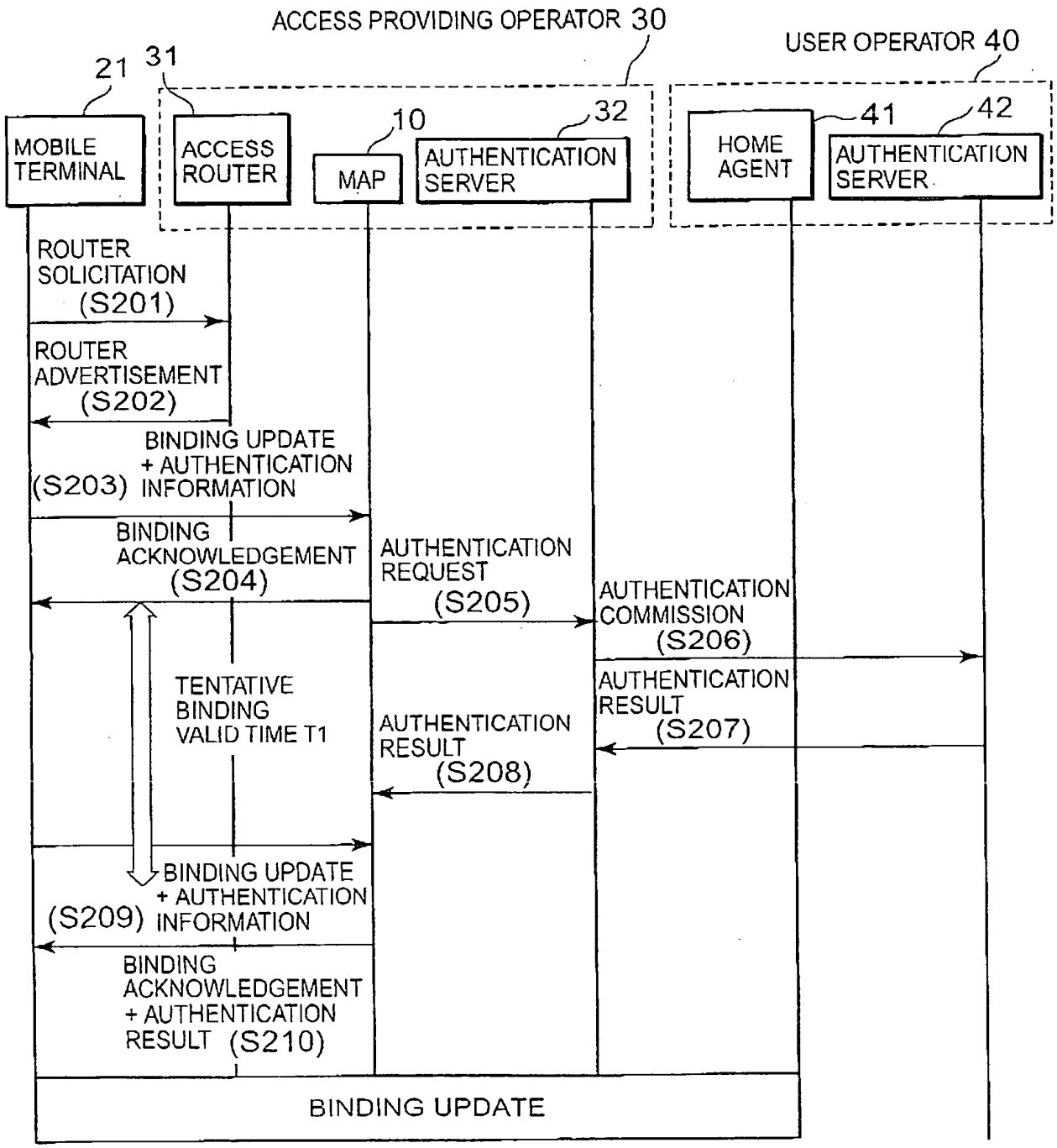

ACCESS PROVIDING OPERATOR 30
USER OPERATOR 40
21
31
10
32
41
42
MOBILE TERMINAL
ACCESS ROUTER
MAP
AUTHENTICATION SERVER
HOME AGENT
AUTHENTICATION SERVER
ROUTER SOLICITATION (S201)
ROUTER ADVERTISEMENT (S202)
BINDING UPDATE + AUTHENTICATION INFORMATION (S203)
BINDING ACKNOWLEDGEMENT (S204)
AUTHENTICATION REQUEST (S205)
AUTHENTICATION COMMISSION (S206)
AUTHENTICATION RESULT (S207)
AUTHENTICATION RESULT (S208)
TENTATIVE BINDING VALID TIME T1
BINDING UPDATE + AUTHENTICATION INFORMATION (S209)
BINDING ACKNOWLEDGEMENT + AUTHENTICATION RESULT (S210)
BINDING UPDATE

FIG. 5

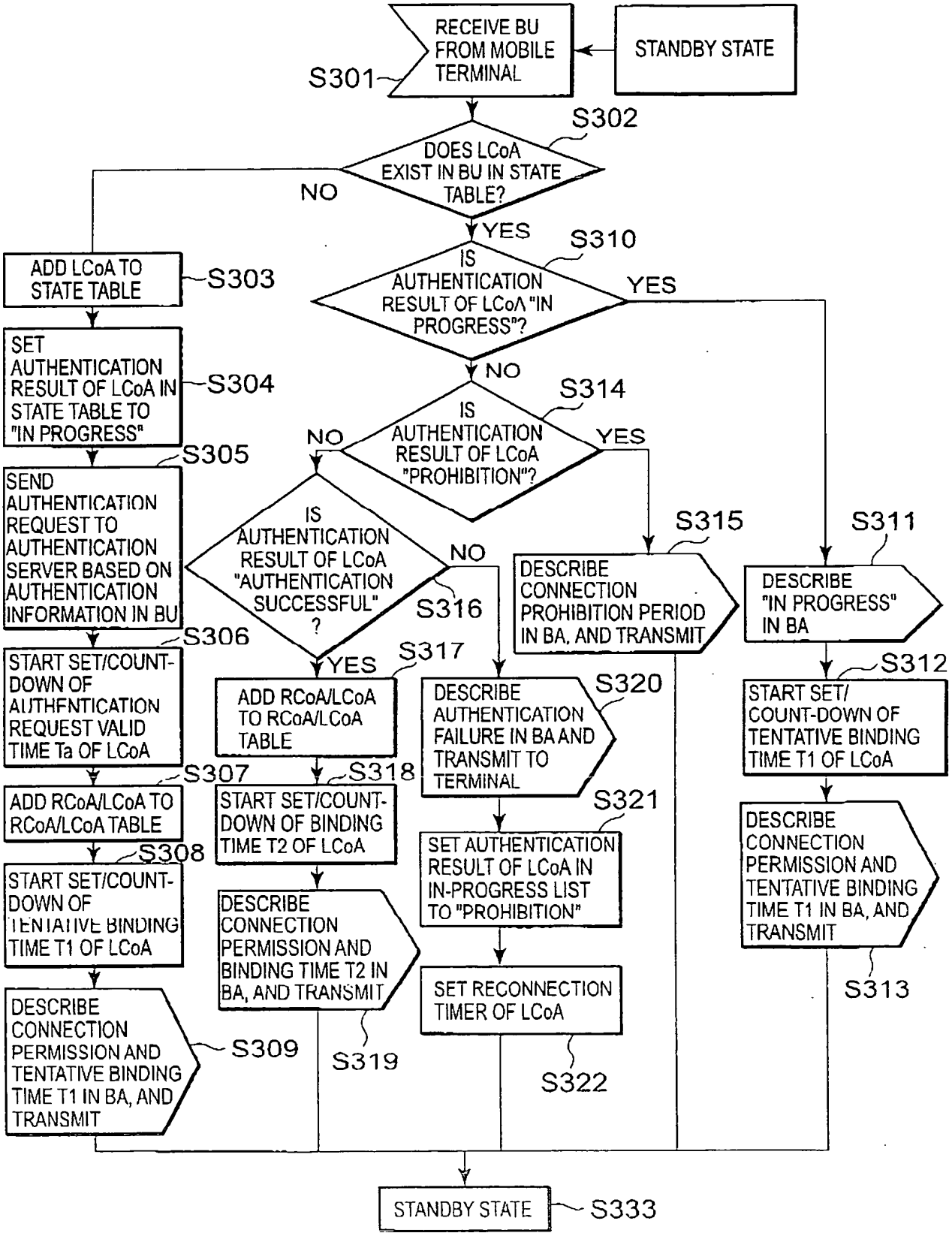

STANDBY STATE
RECEIVE BU FROM MOBILE TERMINAL
S301
S302
DOES LCoA EXIST IN BU IN STATE TABLE?
NO
YES
ADD LCoA TO STATE TABLE
S303
S310
IS AUTHENTICATION RESULT OF LCoA "IN PROGRESS"?
YES
SET AUTHENTICATION RESULT OF LCoA IN STATE TABLE TO "IN PROGRESS"
S304
NO
S314
IS AUTHENTICATION RESULT OF LCoA "PROHIBITION"?
NO
YES
S305
SEND AUTHENTICATION REQUEST TO AUTHENTICATION SERVER BASED ON AUTHENTICATION INFORMATION IN BU
IS AUTHENTICATION RESULT OF LCoA "AUTHENTICATION SUCCESSFUL" ?
NO
S316
S315
DESCRIBE CONNECTION PROHIBITION PERIOD IN BA, AND TRANSMIT
S311
DESCRIBE "IN PROGRESS" IN BA
S306
START SET/COUNT-DOWN OF AUTHENTICATION REQUEST VALID TIME Ta OF LCoA
YES
S317
ADD RCoA/LCoA TO RCoA/LCoA TABLE
S320
DESCRIBE AUTHENTICATION FAILURE IN BA AND TRANSMIT TO TERMINAL
S312
START SET/ COUNT-DOWN OF TENTATIVE BINDING TIME T1 OF LCoA
S307
ADD RCoA/LCoA TO RCoA/LCoA TABLE
S318
START SET/COUNT-DOWN OF BINDING TIME T2 OF LCoA
S321
SET AUTHENTICATION RESULT OF LCoA IN IN-PROGRESS LIST TO "PROHIBITION"
DESCRIBE CONNECTION PERMISSION AND TENTATIVE BINDING TIME T1 IN BA, AND TRANSMIT
S313
S308
START SET/COUNT-DOWN OF TENTATIVE BINDING TIME T1 OF LCoA
DESCRIBE CONNECTION PERMISSION AND BINDING TIME T2 IN BA, AND TRANSMIT
S319
SET RECONNECTION TIMER OF LCoA
S322
DESCRIBE CONNECTION PERMISSION AND TENTATIVE BINDING TIME T1 IN BA, AND TRANSMIT
S309
STANDBY STATE
S333

FIG. 6

LCoA OF TERMINAL	AUTHENTICATION RESULT	AUTHENTICATION REQUEST VALID TIME Ta	AUTHENTICATION REQUEST RESTART TIME Tr	TENTATIVE BINDING TIME T1 BINDING TIME T2
2002::ID101	IN PROGRESS	87	—	45
2002::ID11	AUTHENTICATION FAILURE	—	1532	—
2002::ID334	AUTHENTICATION SUCCESSFUL	—	—	231003
...	...	...	...	...

FIG. 7

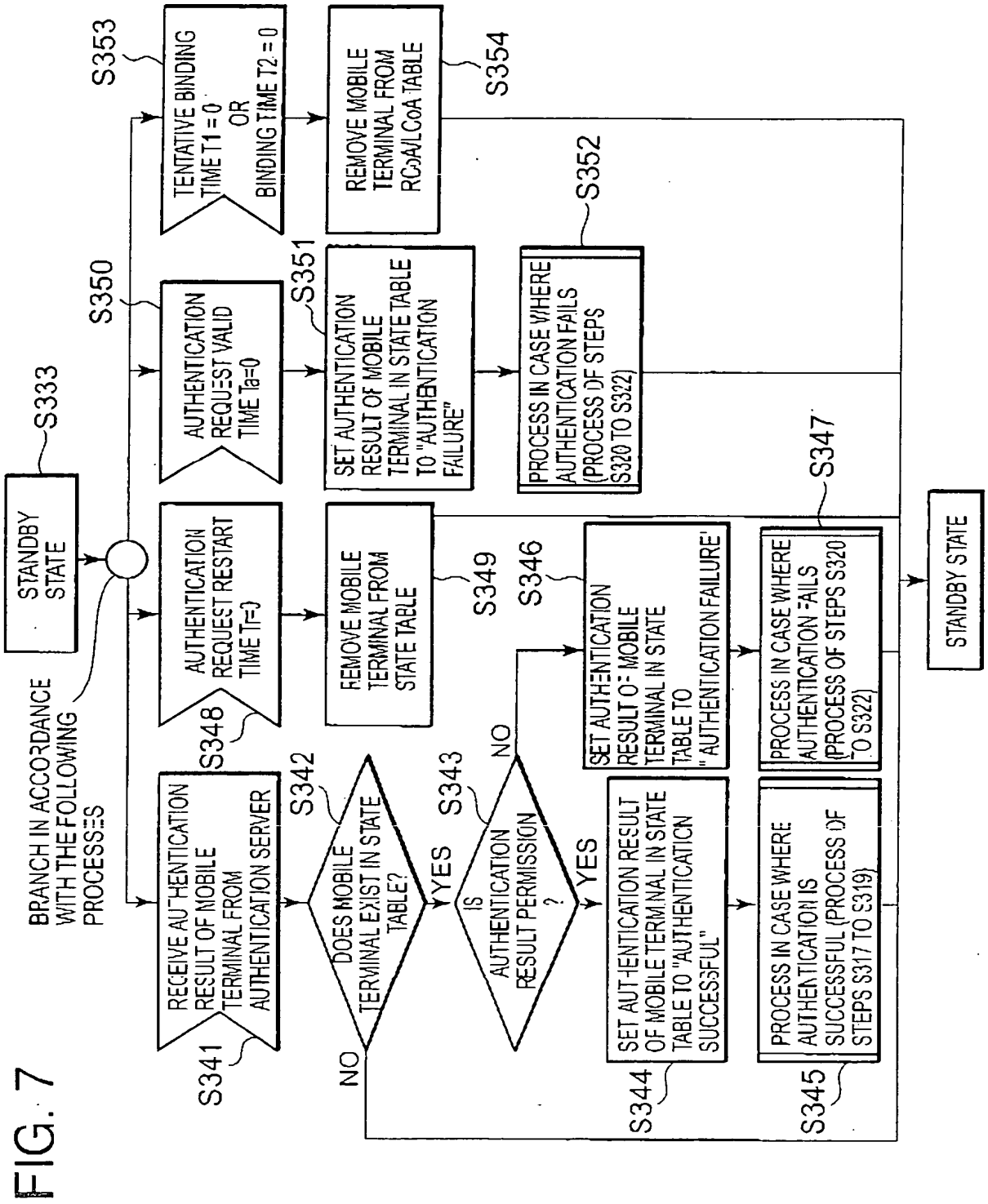
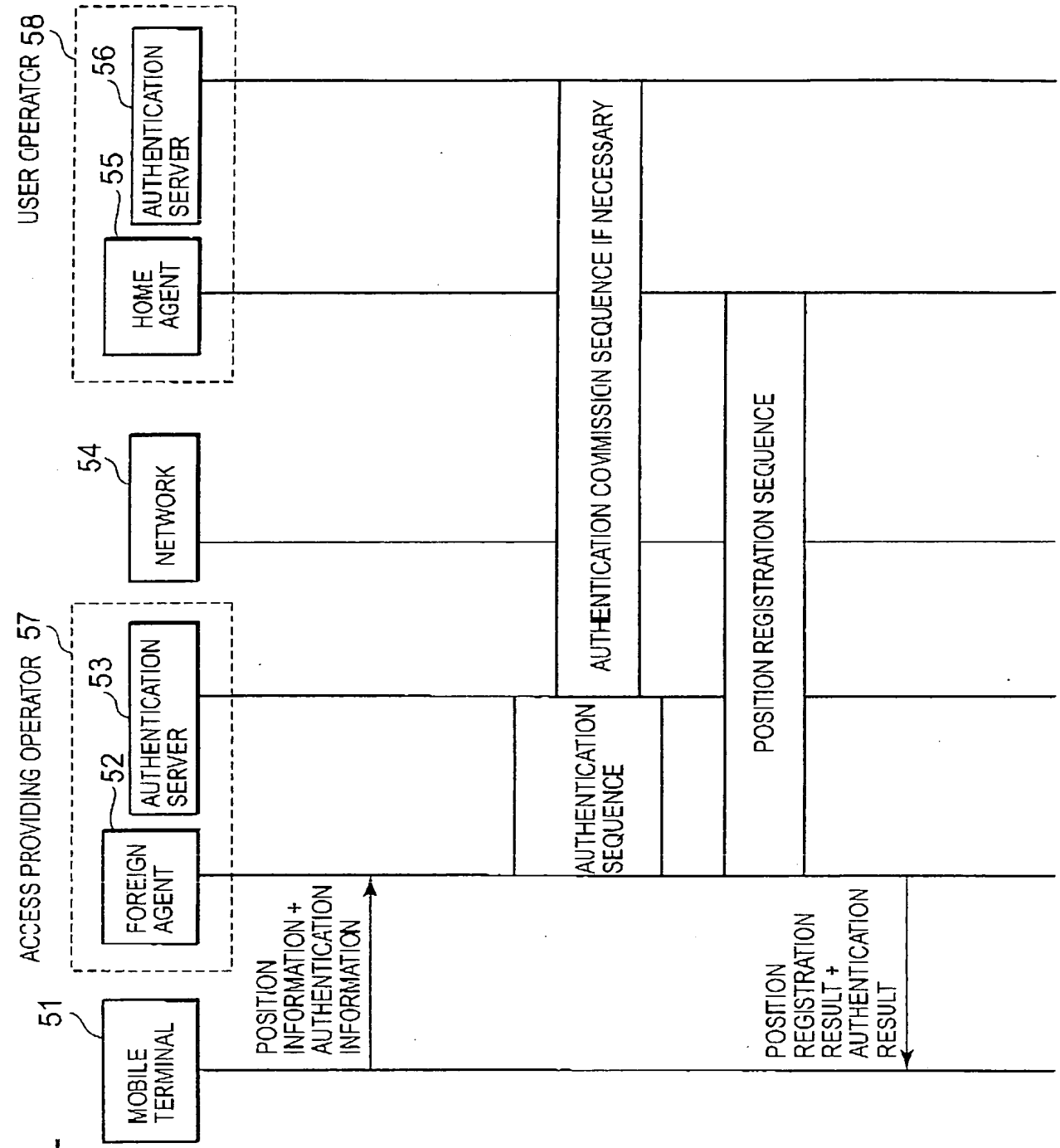

STANDBY STATE
S333
BRANCH IN ACCORDANCE WITH THE FOLLOWING PROCESSES
S350
AUTHENTICATION REQUEST VALID TIME Ta=0
S351
SET AUTHENTICATION RESULT OF MOBILE TERMINAL IN STATE TABLE TO "AUTHENTICATION FAILURE"
PROCESS IN CASE WHERE AUTHENTICATION FAILS (PROCESS OF STEPS S320 TO S322)
S352
S353
TENTATIVE BINDING TIME T1 = 0 OR BINDING TIME T2 = 0
S354
REMOVE MOBILE TERMINAL FROM RCoA/LCoA TABLE
AUTHENTICATION REQUEST RESTART TIME Tr=0
S348
REMOVE MOBILE TERMINAL FROM STATE TABLE
S349
S346
SET AUTHENTICATION RESULT OF MOBILE TERMINAL IN STATE TABLE TO "AUTHENTICATION FAILURE"
S347
PROCESS IN CASE WHERE AUTHENTICATION FAILS (PROCESS OF STEPS S320 TO S322)
STANDBY STATE
RECEIVE AUTHENTICATION RESULT OF MOBILE TERMINAL FROM AUTHENTICATION SERVER
S341
S342
DOES MOBILE TERMINAL EXIST IN STATE TABLE?
NO
YES
S343
IS AUTHENTICATION RESULT PERMISSION ?
NO
YES
SET AUTHENTICATION RESULT OF MOBILE TERMINAL IN STATE TABLE TO "AUTHENTICATION SUCCESSFUL"
S344
PROCESS IN CASE WHERE AUTHENTICATION IS SUCCESSFUL (PROCESS OF STEPS S317 TO S319)
S345

FIG. 8

TERMINAL ID	AUTHENTICATION RESULT	AUTHENTICATION REQUEST VALID TIME Ta	AUTHENTICATION REQUEST RESTART TIME Tr	TENTATIVE BINDING TIME T1 BINDING TIME T2
MT101	IN PROGRESS	87	—	45
MT11	AUTHENTICATION FAILURE	—	1532	—
MT334	AUTHENTICATION SUCCESSFUL	—	—	231003
...	...	...	...	...

FIG. 9
PRIOR ART



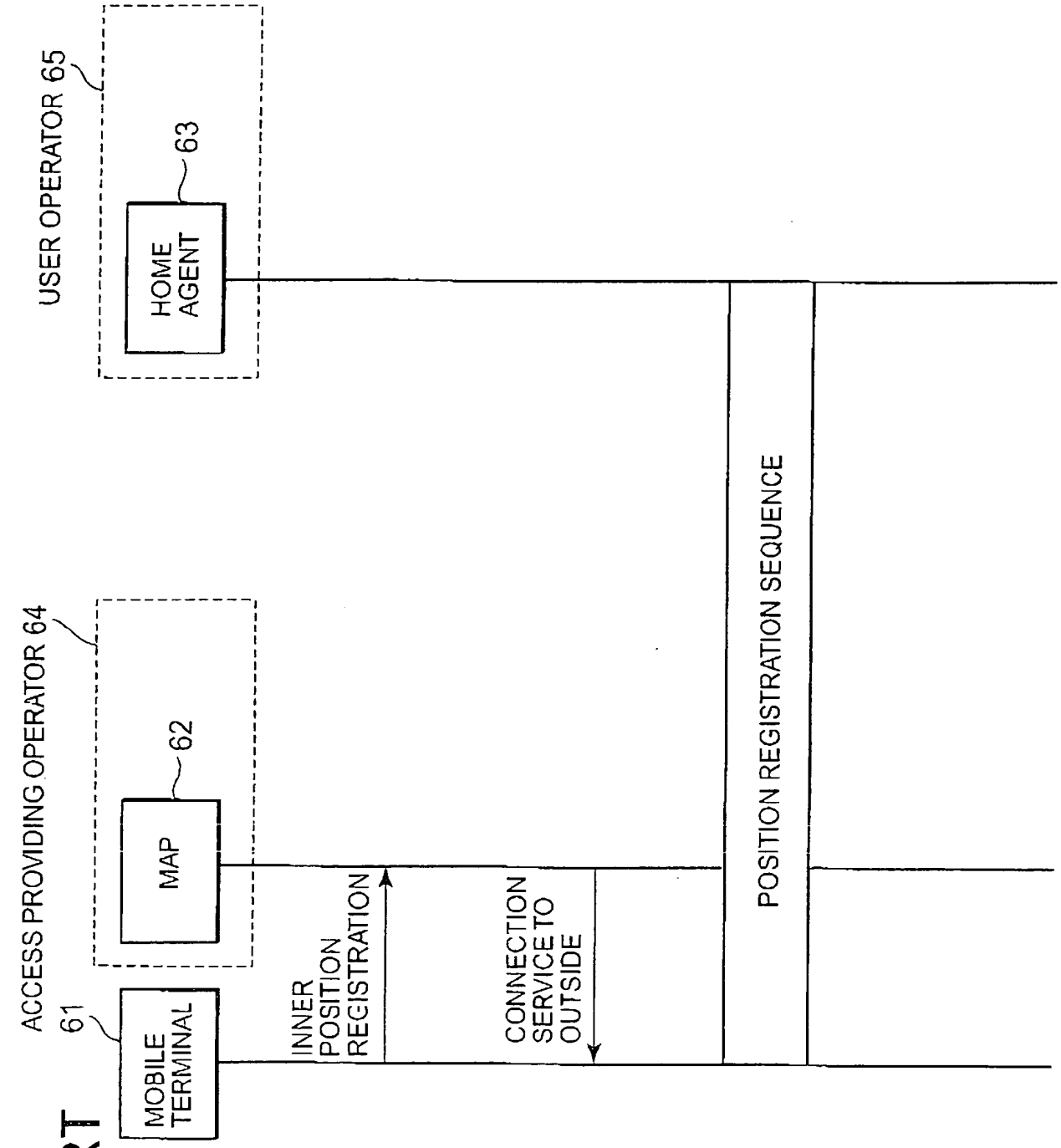


FIG. 10
PRIOR ART